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COLOR TELEVISION DEGAUSSING MEANS HAVING A THERMOMAGNETIC CORE SURROUNDING THE FACE OF THE CATHODE RAY TUBE

Filed April 28, 1966

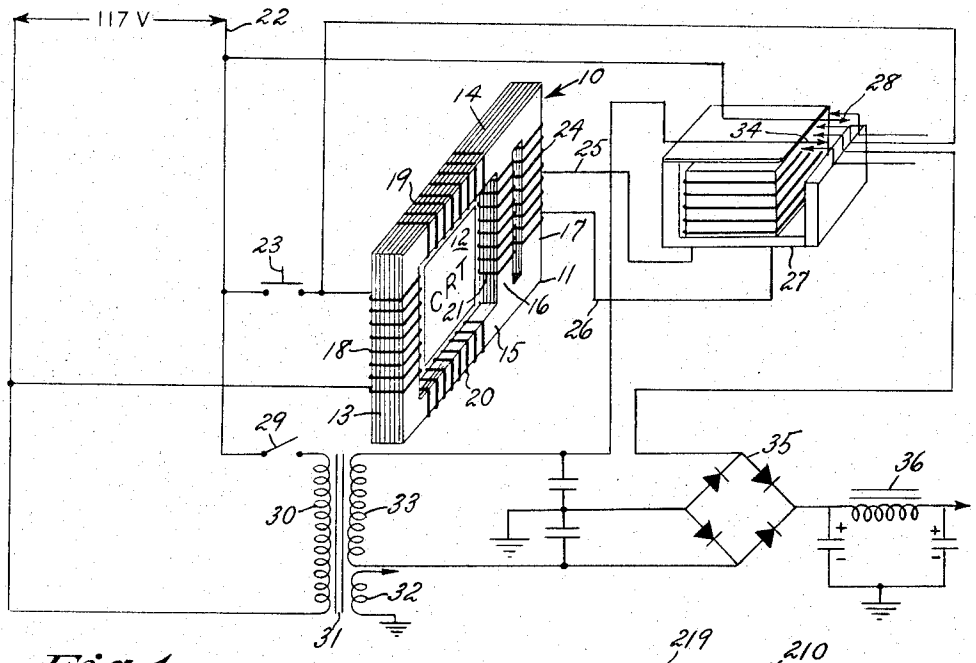


Fig. 1

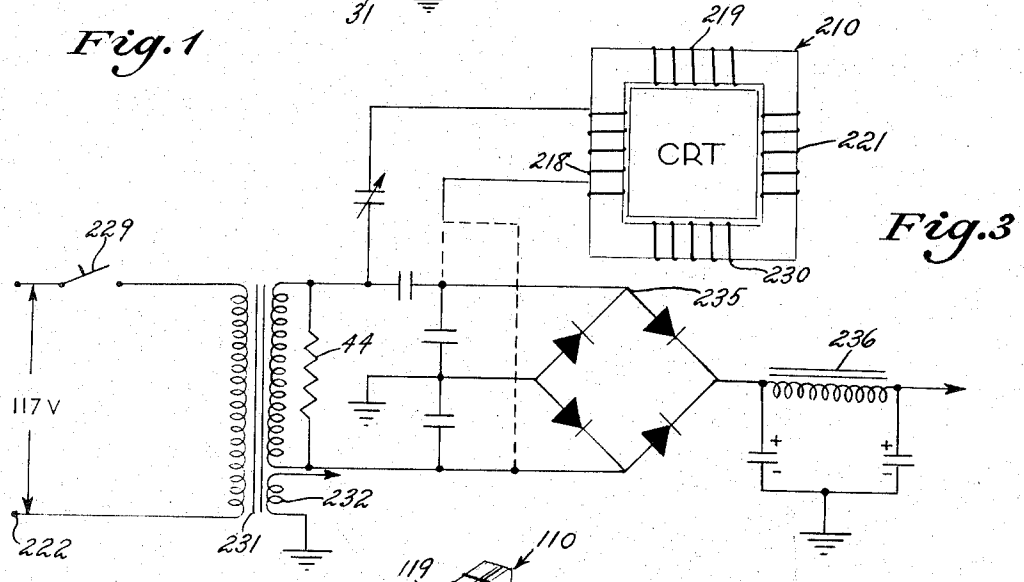


Fig. 3

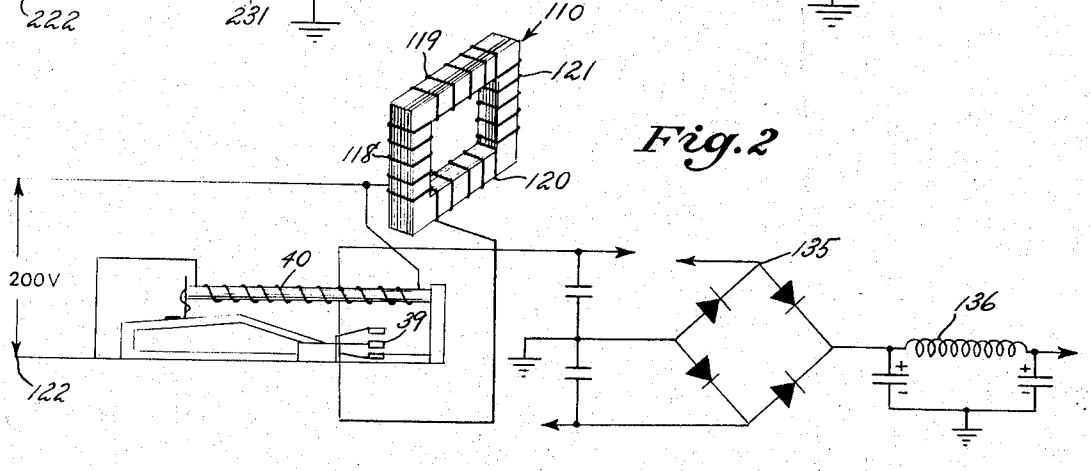


Fig. 2

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COLOR TELEVISION DEGAUSSING MEANS HAVING A THERMOMAGNETIC CORE SURROUNDING THE FACE OF THE CATHODE RAY TUBE

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5 Claims. (Cl. 315—8)

This invention relates generally to the field of television degaussers of the type in which magnetic field producing means surrounds the peripheral areas of the cathode ray tube, and more particularly to an improved form thereof having means for automatically tapering the magnetic field to a minimum during the period of time in which the television receiver is warming to operating temperature. Devices of this general type are known in the art, and the invention lies in specific constructional details permitting simplicity in manufacture, and improved reliability.

It is among the principal objects of the present invention to provide an improved degaussing means which will employ the thermomagnetic characteristics of certain metallic materials.

Another object of the invention lies in the provision of an improved degausser of the class described in which the cost of manufacture may be of a relatively low order, thereby permitting consequent wide sale, distribution and use.

A further object of the invention lies in the provision of an improved degaussing struture which will delay operation of the cathode ray tube until its function has been completed.

These objects, as well as other incidental ends and advantages, will more fully appear in the progress of the following disclosure, and be pointed out in the appended claims.

In the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts of the plural embodiments disclosed.

FIGURE 1 is a schematic view of a first embodiment of the invention.

FIGURE 2 is a schematic view of a second embodiment of the invention.

FIGURE 3 is a schematic view of a third embodiment of the invention.

Referring to FIGURE 1 in the drawing, the first embodiment, generally indicated by reference character **10**, includes a rectangularly shaped laminated metallic core **11** which surrounds the peripheries of a conventional cathode ray tube of a type used for color reception. The core is formed of any material which will exhibit thermomagnetic characteristics, that is to say the property of changing obtainable flux by varying ambient temperature conditions. The Nilvar family is particularly suited for this purpose, and I have found that an alloy consisting of 30% nickel and the remainder iron to function extremely well. As seen in FIGURE 1, the core **11** includes a first side member **13**, a top member **14**, a bottom member **15**, a side member **16**, and an auxiliary member **17**. The members **13–16**, inclusive, are surrounded by first, second, third, and fourth coils, **18**, **19**, **20** and **21**, respectively, all of which are wired in series to the usual 117 volt alternating current source, generally indicated by reference character **22**, including a push-button **23**.

The auxiliary member **17** is provided with a delay coil **24**, the function of which will be more fully explained hereinbelow, having leads **25** and **26** connected to a relay **27** having latching contacts **28**.

The source **22** also connects through a power switch

29 to the primary winding **30** of a power transformer **31** having a first secondary winding **32** providing filament heater voltage to the filaments to the tubes of the receiver (not shown). A secondary winding **33** provides plate voltage, and is wired in series to a second set of contacts **34** on the relay **27**. Current from the secondary winding passes through the usual rectifier and choke circuits **35** and **36**, respectively, as is well known in the art.

During operation, the power switch **29** is closed, following which the push-button **23** is pressed. Current flows through the coils **18–21**, to create a degaussing field operative upon the cathode ray tube **12**, the coils being formed of a wire which produces resistive heating, as well as magnetic lines of force within the core. Current is induced in the delay coil **24** which energizes the relay **27**, and moves it to a first position, wherein latching contacts **28** are closed, thus eliminating the need for maintaining constant pressure upon the push-button **23**. As the core **11** becomes heated, the obtainable flux gradually diminishes, and the amount of current induced in the delay coil **24** correspondingly diminishes to a point where it no longer maintains the relay **27** in the first mentioned position. The relay then moves under resilient action to a second position, following which the second contacts **34** complete the circuit through the secondary winding **33** to allow plate voltage to flow to the tubes of the receiver, and ultimately to the cathode ray tube.

The degausser will then remain inoperative until the receiver is again switched off by means of the switch **29**, and the cycle may be repeated as often as necessary.

Turning to the second embodiment illustrated in FIGURE 2, to avoid needless repetition, certain of the parts corresponding to those of the first embodiment have been designated by similar reference characters with the additional prefix "1."

The second embodiment of the invention differs from the first embodiment in the elimination of the auxiliary member **17**, and the substitution of a thermostatically controlled switch **39** including a heater coil **40** which performs the function of the relay **27**. In this embodiment, the use of resistive heating in the coils **118**, **119**, **120** and **121** is not required. To simplify construction, the coils **118–121** are operated at a higher voltage than in the first embodiment, and in the same circuit with the plate voltage.

In the third embodiment, again to avoid needless repetition, parts corresponding to those of the first embodiment have been designated by similar reference characters with the additional prefix "2."

In the third embodiment, a resistance heater **44** is placed in parallel with the secondary winding **233**, and the coils **218–221** are also connected in parallel with the plate vlotage. When the switch **229** is closed, current is shorted through the resistance heater **44**, the heating output of which is used to heat the core **211**. As the heater **44** becomes hot, its resistance increases, with the result that current flows in greater degree to the plates of the tubes of the receiver.

In each of the three embodiments, the heating of the degaussing core causes a progressive reduction in flux to a minimal degree, following which the plate voltage becomes operative.

We wish it to be understood that we do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

We claim:

1. A television degaussing means comprising magnetic means surrounding the face of a cathode ray tube, said magnetic means including a core formed of ma-

terial exhibiting thermomagnetic properties, at least one coil surrounding said core, an alternating current source powering said coil, and means for progressively heating said core to proportionally diminish the magnetic flux output with increase in temperature.

2. Structure in accordance with claim 1 in which said core serves as said heating means.

3. Structure as set forth in claim 2 in which said core includes an auxiliary segment, a delay coil surrounding said segment, a relay powered by said coil, and contacts on said relay controlling flow of current to said cathode ray tube.

4. Structure in accordance with claim 3 including a power transformer having first and second windings having filament and plate voltage outputs, said relay controlling said plate voltage output.

5. Structure in accordance with claim 1 in which said core is formed of an alloy of approximately 30% nickel and the remainder iron.

No references cited.

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